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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,810	04/06/2001	Ingemar Bystedt	333.773PAT	6864

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EXAMINER	
VU, TUAN A	

ART UNIT	PAPER NUMBER
2124	6

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/827,810	BYSTEDT ET AL.	
	Examiner	Art Unit	
	Tuan A Vu	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/6/2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the application filed April 6, 2001.

Claims 1-10 have been submitted for examination; and the IDS papers filed 11/08/2002 are also considered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the monitoring unit" in line 3. There is insufficient antecedent basis for this limitation in the claim. This will be interpreted as if it were 'a monitoring unit'.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bates et al., USPN: 6,658,653 (hereinafter Bates) in view of Scheiffer et al., USPN: 6,182,083 (hereinafter Scheiffer).

As per claim 1, Bates discloses a method of supervising the execution of program sections written in a object-oriented programming language, comprising:

starting program section and creating an class object (e.g. col. 4, lines 4-7 – Note: the object-oriented language like C++ inherently amounts to creating code with class instantiation in objects);

storing in a memory unit information segments identifying the created object, such segment being stored for a first time period (e.g. Fig. 4, 5 – Note: time fields in history table *500* is equivalent to object information stored for a time period);

terminating the program section and removing the unallocated objects in memory (e.g. steps *1514-1518* - Fig. 15); scanning the memory unit for objects that have been stored longer than needed (col. 6, lines 46-57; Fig. 4, 5, 10).

But Bates does not disclose that removing or freeing unallocated objects is removing the information segments identifying the created objects; even though suggests removing of memory blocks for reuse in other tasks (e.g. col. 6, lines 46-57). The concept used in object-oriented programming for object loading and binding such as creating table or structures so as to provide information on class or objects created for pre-runtime allocation or relocation was a known concept as well as the removing of unused or unclaimed memory blocks after some time frame, like in garbage collection in Java at the time the invention was made. In a method to supervise object-oriented programming language code implementing persistent transactions, Scheiffer uses templates with time registration information analogous to the object/block allocation structures taught by Bates to store fields specific to the methods required for the execution of the transaction and deleting of multi-fields for which a time registration has expired (e.g. Fig. 8, 15,

20). It would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the deallocation scheme as suggested by Bates so that the information segments in memory such as taught by Scheiffer be removed upon some time frame because this not only help reclaim memory space from unused object code block in memory but also from the space allocated for the information specific on such allocated unused blocks such as intended by Bates and further enhanced by Scheiffer.

Nor does Bates explicitly disclose scanning the memory unit to identify information segments having been stored longer than the first time period. But in view of the above teachings by Scheiffer, this limitation would have been obvious for the same rationale as set forth above.

Nor does Bates disclose from the scanning the identified segments triggering an alarm signal. Effecting a warning signal upon detection of events leading to potential violation in any object monitoring paradigm was a known concept, especially in the management through multiprocessing or across a network. Thus, in view of Scheiffer's event catcher and notification as suggested in the above teachings (e.g. Fig. 8, 15, 20) and instead of generating just a notification, one of ordinary skill in the art would be motivated to provide a warning signal to Bates' event catching user interface (Bates: Fig. 1, 2) for effecting a debug process allowing the user to timely witness or notified of events from the memory reclaiming process or tool, especially when the events are related to a supervision effected in a multi-computer network as suggested by Scheiffer (Fig. 1-2) or Bates (devices *146* – Fig. 1).

As per claim 2, Bates discloses recording the time when some space has been allocated (e.g. col. 8, lines 9-11).

As per claims 3 and 4, Bates discloses delaying the removal of unallocated or un-referenced space until detection that such space is no longer needed (e.g. Fig. 4, 10, 17A-B – Note: use heap manager to determine which byte code is actually allocated so to avoid being freed is equivalent to determining whether a object is actively needed and delaying the space freeing thereupon as long as such object is active).

As per claim 5, this claim is a variation of the combined limitations of claim 3, 4, and the alarm triggering limitation in claim 1; hence is rejected with the corresponding rejections as set forth therein, the rationale being further that the warning effecting upon determining that a space for objects or information segments to be de-allocated or removed is only good when the objects or information segments are determined to be no longer needed for execution.

As per claim 6, Bates (in combination with Scheiffer) discloses command unit to communicate with the memory and a monitoring unit to identify information segments that have been stored longer than a first time period (e.g. Fig. 2-5, 8, 10, 12-15, 17A-B).

As per claim 7, Bates (in combination with Scheiffer) does not explicitly disclose maintaining statistical information about instances in each class but teach user defining of number of references on object for cross referencing (col 5, lines 46-57); hence has taught determining how many objects being referred to when assessing memory cross-references data or memory limit usage. In case Bates does not already establish statistics on number of objects being created, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement such statistics on class instances so to enable the determining of memory usage and the number of actively used instances of class provisioned for the

execution of objects within such memory space thus allotted in order to obviate memory reference conflicts and de-allocating of unreferenced instances as intended by Bates.

As per claim 8, Bates discloses a user interface for debug (re claim 1) and the rationale as used in claims 1, 5 have addressed the notification message when information segments have been identified. Hence, this claim is rejected with the combination of corresponding rejection in claim 1 and 5.

As per claim 9, Bates discloses sending UI message when threshold is exceeded (e.g. Call UI *1620* – Fig. 16).

As per claim 10, Bates discloses a method for supervising the execution of program sections written in a object-oriented programming language, comprising:

starting program section and creating an class object (e.g. col. 4, lines 4-7 – Note: the object-oriented language like C++ amounts to creating code with class instantiation in objects);

storing in a memory unit information segments (Fig. 4, 5) identifying the created object, in a main memory (e.g. memory *116* – Fig. 1);

terminating the program section, removing the unallocated objects in memory (e.g. steps *1514-1518* - Fig. 15); and scanning the memory unit for objects that have been stored longer than needed (col. 6, lines 46-57; Fig. 4, 5, 10).

But Bates does not explicitly disclose a shared memory; but in view of the teachings by Scheiffer to use a central repository to support the transaction operations as mentioned in claim 1 along with the material incorporated by reference (Scheiffer: col. 2, lines 14-16), the concept of using a shared repository associated with processes for synchronizing changes, or managing messages for queries against such repository from among multiple accessing users is strongly

suggested. In view of the multi-computer, or events/threads based in network related framework for debugging or object matching as suggested by both Bates and Scheiffer (Scheiffer: Fig. 1-2; Bates: devices *146* – Fig. 1), it would have been obvious for one of ordinary skill in the art at the time the invention was made to make the main memory by Bates a shared memory so all the information on processes are centralized so to facilitate a memory space and execution resources management as suggested by Bates or further enhanced by Scheiffer.

Nor does Bates explicitly teach removing the information segments from identifying that the created objects are completed or inactive; scanning for those information segments that have been stored for more than a predetermined time period; sending a alarm signal upon identifying that a created object is inactive; and delaying such sending when the object is active. But all these limitations have been addressed in claim 1, 3, and 4.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (703)305-7207. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for formal communications intended for entry)

or: (703) 746-8734 (for informal or draft communications, please consult Examiner before using this number)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA. , 22202. 4th Floor(Receptionist).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAT
April 16, 2004

TODD INGBERG
PRIMARY EXAMINER